

# DewPro® MMY30

## *Trace Moisture Transmitter*

### User's Manual





GE  
Sensing & Inspection Technologies

# DewPro<sup>®</sup> MMY30

*Trace Moisture Transmitter*

User's Manual

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## Information Paragraphs

- **Note** paragraphs provide information that provides a deeper understanding of the situation, but is not essential to the proper completion of the instructions.
- **Important** paragraphs provide information that emphasizes instructions that are essential to proper setup of the equipment. Failure to follow these instructions carefully may cause unreliable performance.
- **Caution!** paragraphs provide information that alerts the operator to a hazardous situation that can cause damage to property or equipment.
- **Warning!** paragraphs provide information that alerts the operator to a hazardous situation that can cause injury to personnel. Cautionary information is also included, when applicable.

## Safety Issues

**WARNING!** It is the responsibility of the user to make sure all local, county, state and national codes, regulations, rules and laws related to safety and safe operating conditions are met for each installation.

## Auxiliary Equipment

### Local Safety Standards

The user must make sure that he operates all auxiliary equipment in accordance with local codes, standards, regulations, or laws applicable to safety.

### Working Area

**WARNING!** Auxiliary equipment may have both manual and automatic modes of operation. As equipment can move suddenly and without warning, do not enter the work cell of this equipment during automatic operation, and do not enter the work envelope of this equipment during manual operation. If you do, serious injury can result.

**WARNING!** Make sure that power to the auxiliary equipment is turned OFF and locked out before you perform maintenance procedures on the equipment.

### Qualification of Personnel

Make sure that all personnel have manufacturer-approved training applicable to the auxiliary equipment.

### Personal Safety Equipment

Make sure that operators and maintenance personnel have all safety equipment applicable to the auxiliary equipment. Examples include safety glasses, protective headgear, safety shoes, etc.

### Unauthorized Operation

Make sure that unauthorized personnel cannot gain access to the operation of the equipment.



# Chapter 1. General System Information

## 1.1 Unpacking and Inspection

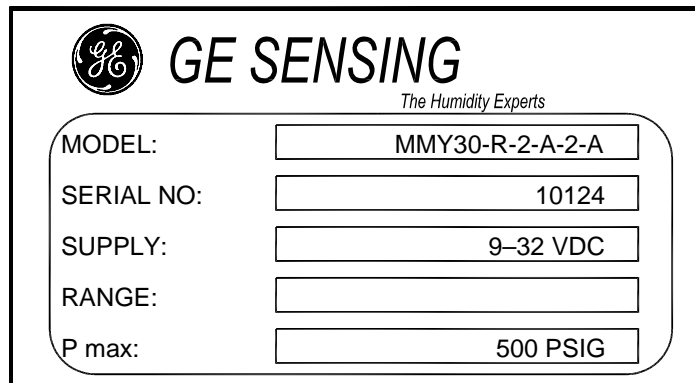
Upon receipt of the DewPro MMY30, examine the shipping carton for broken or open packing, distortion, or any other evidence of mishandling. If an examination indicates there is damage to the unit or any of its components, notify the carrier (within 15 days of delivery) and request an inspection.

Move the carton to a clean work area and unpack. The carton you receive should contain:

- DewPro MMY30
- Installation and Operation Manual
- Calibration Certificate

### 1.1 Unpacking and Inspection (cont.)

Compare the last five digits (numbers or letters) of the model number on the product label (see Figure 1 below) with the product structure (see Table 1 on page 2), to ensure you have received everything you ordered.



The product label for the DewPro MMY30 Trace Moisture Transmitter. It features the GE SENSING logo at the top, with the tagline 'The Humidity Experts' below it. The label contains a table with the following information:

MODEL:	MMY30-R-2-A-2-A
SERIAL NO:	10124
SUPPLY:	9-32 VDC
RANGE:	
P max:	500 PSIG

Figure 1: DewPro MMY30 Product Label

### 1.1.1 Product Structure

**Table 1: Product Structure**

Category	Digit	Description
<b>Certification/ Approvals</b>	<b>R</b>	Standard (not certified)
	<b>A</b>	FM IS Cl. I, II, III: Div. 1; Grps. A-G
	<b>B</b>	FM XP Cl.1, Div. 1; Grps. A-D
	<b>C</b>	FM Cl.1, Div. 2, Grps. A-D, Cl. II, III, Div. 1, Grps. E-G
	<b>S</b>	Other
<b>Process Connection</b>	<b>1</b>	½" MNPT (1/4" tube fitting if B, C or D is selected below)
	<b>2</b>	G ½ (6 mm tube fitting if B, C or D is selected below)
	<b>S</b>	Other
<b>Orifice Configuration</b>	<b>A</b>	Inlet: None; Outlet: Orifice, with ¼" FNPT
	<b>B</b>	Inlet: None; Outlet: Orifice, with (6 mm) ¼" tube fitting
	<b>C</b>	Inlet: None; Outlet: None, with (6 mm) ¼" tube fitting
	<b>D</b>	Inlet: Orifice; Outlet: None, with (6 mm) ¼" tube fitting
	<b>S</b>	Other
<b>Enclosure Conduit</b>	<b>1</b>	M20 X 1.5 F with cable gland
	<b>2</b>	M20 X 1.5 F with 1/2" FNPT adaptor
	<b>S</b>	Other
<b>Output Configuration/ Dewpoint Range</b>	<b>A</b>	Td -90 °C to +10 °C (-130 °F to +50 °F), no display, error 22 mA
	<b>B</b>	Td -90 °C to +10 °C (-130 °F to +50 °F), no display, error Hold
	<b>C</b>	Td -90 °C to +10 °C (- 130 °F to +50 °F), no display, error 3.6 mA
	<b>D</b>	0-100 ppm <sub>v</sub> 1 bar, no display, error 22 mA
	<b>E</b>	0-100 ppm <sub>v</sub> 1 bar, no display, error Hold
	<b>F</b>	0-100 ppm <sub>v</sub> 1 bar, no display, error 3.6 mA
	<b>G</b>	With integral display/user interface
	<b>H</b>	With integral display/user interface, includes moisture units Lbs/MMSCF, natural gas
	<b>S</b>	Other

## 1.2 Introduction

### 1.2.1 Unit Description

The DewPro MMY30 trace moisture transmitter (shown in Figure 2 on page 3 below) is a loop-powered dewpoint measuring device. The transmitter includes a sensor element, a flow chamber, a weather-proof enclosure, microprocessor electronics, and assorted fittings, all in a compact assembly. In most cases, either the inlet or outlet port includes an orifice to regulate the flow. The placement of this orifice determines whether the dewpoint measurement is done at process (line) pressure (outlet orifice), or at atmospheric pressure (inlet orifice). A 2 micron sintered inlet filter prevents particles from entering the device.

## 1.2.2 Optional Display/User Interface

The optional display/user interface feature allows the DewPro to be configured to the user's specifications. See Chapter 4 for more information.

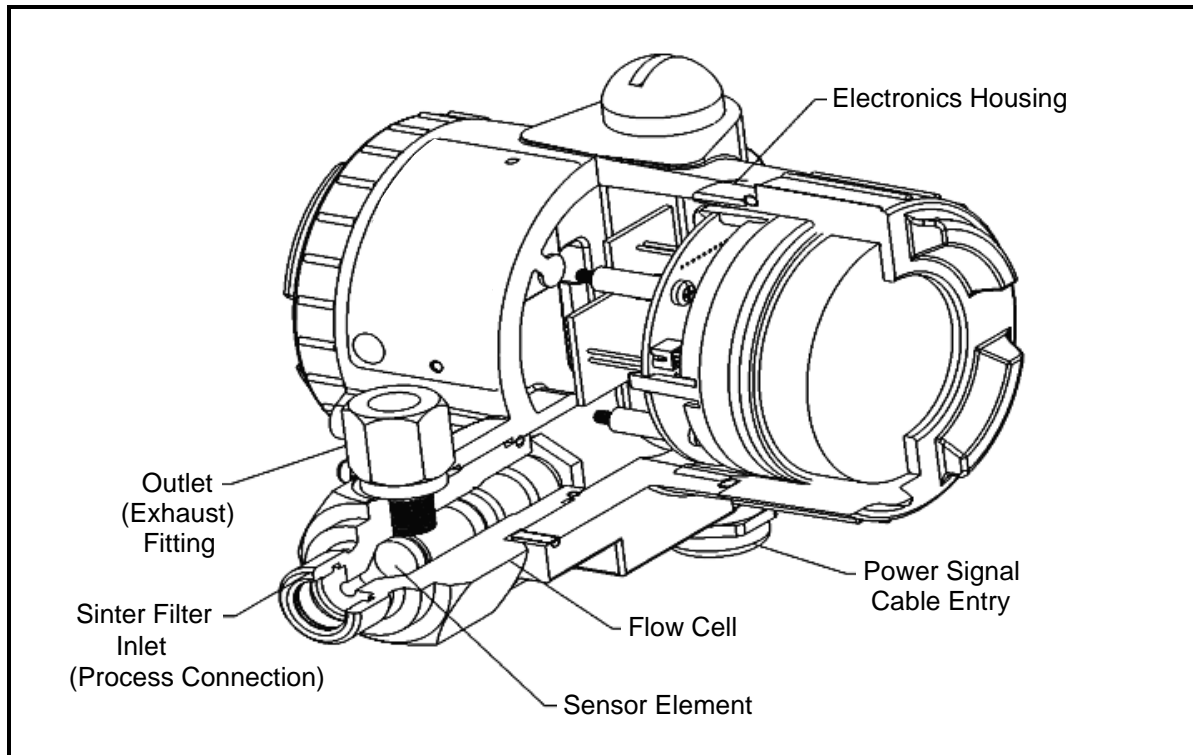


Figure 2: DewPro MMY30 Transmitter

## 1.3 Theory of Operation

### 1.3.1 4 to 20 mA Loop

The DewPro MMY30 microprocessor-controlled electronics operate with a DC voltage supply from 12 to 28 VDC. At the nominal 24 V DC supply, the maximum loop resistance is 600 ohms. The signal is represented by the 4 to 20 mA loop current and is directly proportional to the dewpoint range in °C or °F. In the standard range, 4 mA corresponds to -90°C (-130°F) and 20 mA to +10°C (+50°F) dewpoint temperature. The optional unit of measure is ppm<sub>v</sub> in the standard range 0-100 ppm<sub>v</sub>.

### 1.3.2 Bypass

In dryer applications, the moisture sensor performs best when mounted in a bypass. The built-in bypass of the DewPro eliminates costly hardware associated with traditional sampling methods. The DewPro installs simply into the process with its G ½ or ½" MNPT threaded connection.

### 1.3.3 Planar Sensor

The heart of the MMY30 is the planar sensor element. It incorporates a superior aluminum oxide sensor that provides longer calibration stability, excellent corrosion resistance, and improved speed of response. The sensor, mounted on a ceramic substrate, also has a reduced temperature coefficient.

### 1.3.4 Calibration

Each DewPro is factory calibrated against precise NIST certified moisture references and has an accuracy of  $\pm 2^{\circ}\text{C}$  dewpoint at  $25^{\circ}\text{C}$  temperature. For field validation, GE Sensing offers a unique validation device. The MMY245 field validator connects to the DewPro on site and offers a one-point or two-point correction.

### 1.4 Dimensions

Choose a mounting location which allows enough clearance for the use of tools and for connection of the field validator. Figure 3 below shows the dimensions of the standard DewPro, and Figure 4 on page 5 shows the DewPro with the optional display/user interface.

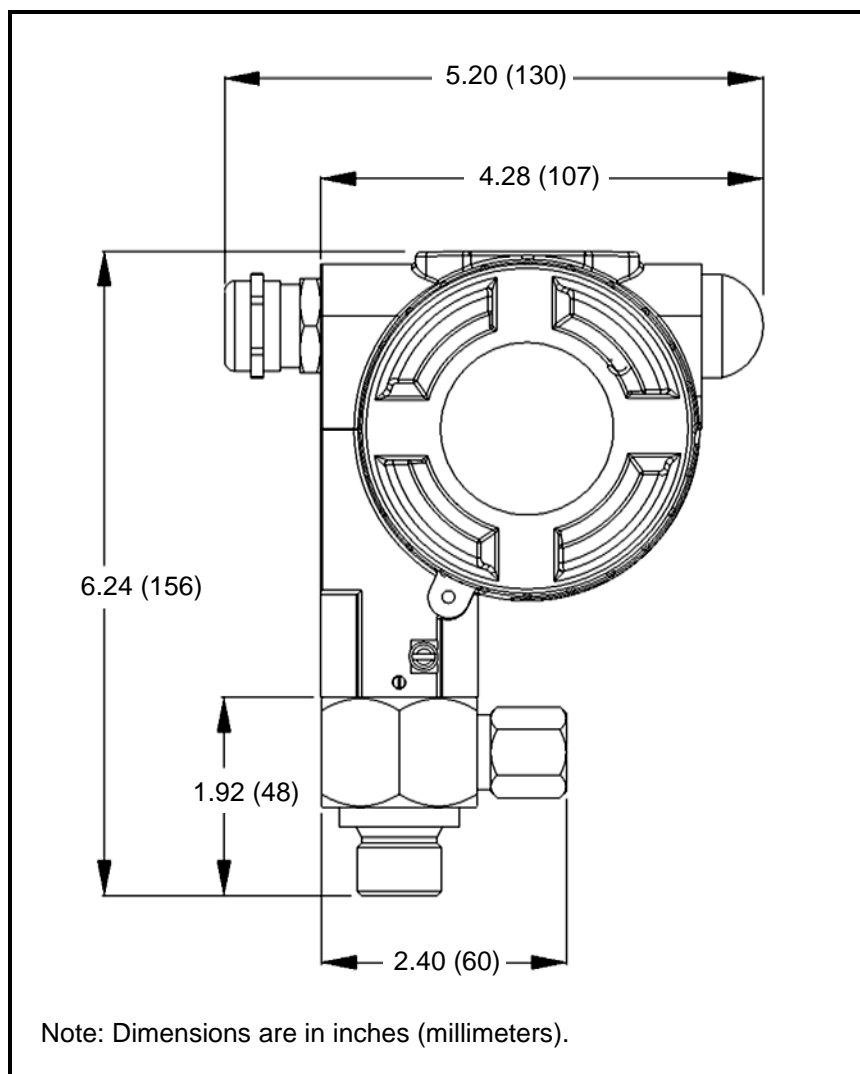
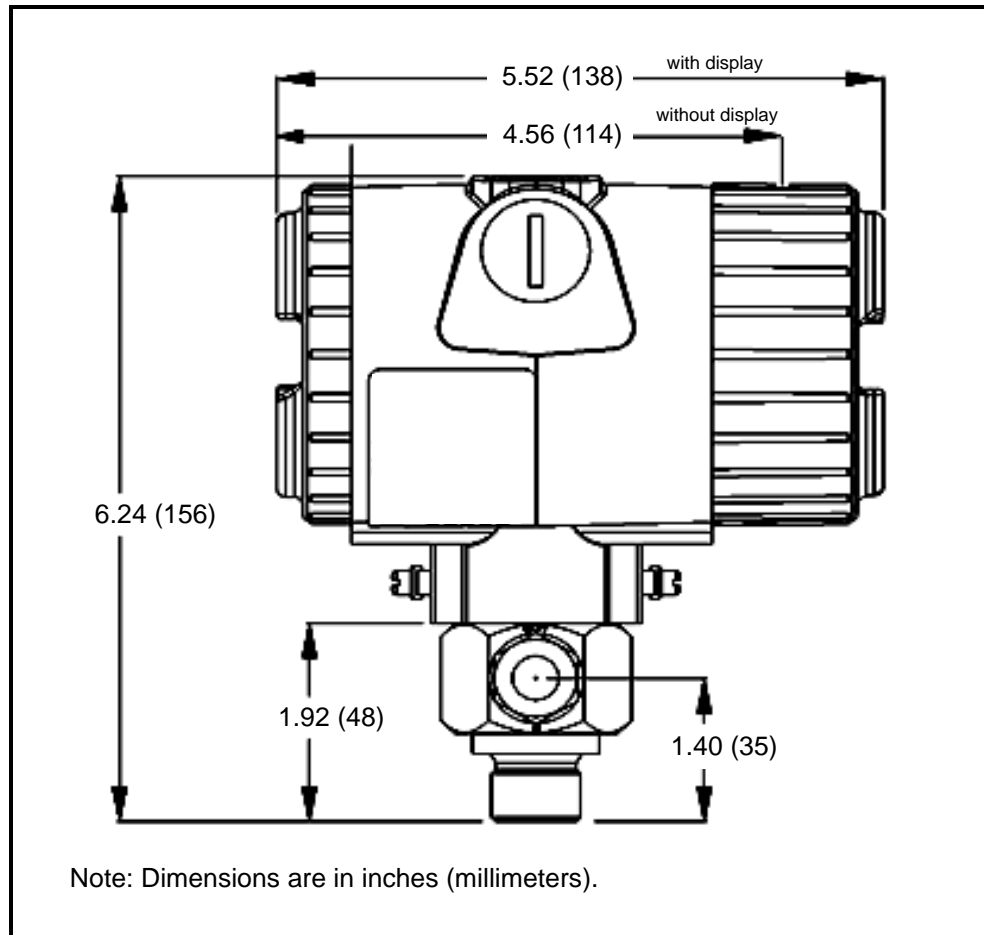


Figure 3: Standard DewPro Dimensions



**Figure 4: DewPro with Optional Display/User Interface**

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## Chapter 2. Installation Guidelines

### 2.1 General Hints

**CAUTION!** Before installation, please read all instructions. The DewPro is designed to be mounted to pressurized systems. Take all necessary precautions when mounting or removing the DewPro.

- Mount the DewPro vertically whenever possible to prevent particles or condensation from entering the bypass.
- Mount the DewPro after a shut-off valve to depressurize the DewPro when removing it from the process pipe in case of maintenance or field compensation.

**CAUTION!** Do not over-tighten! The outlet fitting is connected to the bypass block with a G 1/4 straight thread (with gasket) which will seal if the fitting is simply hand-tightened. When connecting an external device, counter the fitting with a second wrench when tightening. If the inlet is equipped with a G 1/2 straight thread and gasket, the seal is obtained by simply hand-tightening the DewPro.

**CAUTION!** If you are installing the DewPro into a pressurized system (up to 10 bar), depressurize the system before installing or removing the sensor. Pressurized systems require a stainless steel compression fitting.

### 2.2 Method I - Orifice at Outlet

Figure 5 below illustrates installation at the outlet orifice.

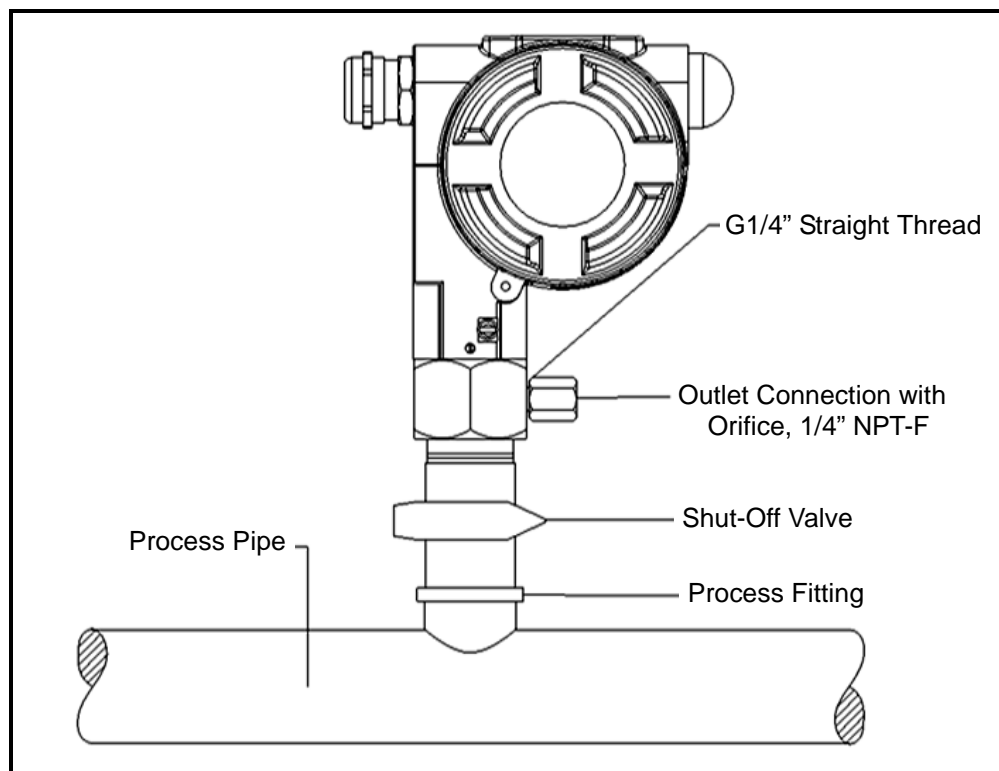


Figure 5: DewPro Installation at Outlet Orifice

### 2.2.1 Pressure Dewpoint

Air dryers producing general instrument air are typically specified with a pressure dewpoint rating. The majority of dryers operate in a dewpoint range between  $-40^{\circ}\text{C}$  and  $-75^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$  and  $-100^{\circ}\text{F}$ ). A pressure of 7 to 8 bar (= 100 psig) is very common.

### 2.2.2 Air Flow

The DewPro is designed to measure the pressure dewpoint. By restricting the flow at the outlet of the integral bypass with an orifice, the sensor monitors the dewpoint at process pressure. The bleed-off air to the atmosphere at 7 to 8 bar (100 psig), is approximately 70 cc/min. (28 L/h or =1.0 SCFH cfh). For smaller sized dryers of  $3\text{m}^3/\text{min}$ . (=100 cfm) the air loss is only 0.002% of the air production and is negligible. Despite the very low flow rate through the bypass as shown, the air sample in the DewPro bypass chamber is refreshed every second due to the small volume design. As a result, the sensor sees changes in moisture instantaneously. Due to the low flow rate, the flow velocity is also very low at  $<0.01\text{ m/sec}$  (=34 m/h). The low flow velocity prevents the inlet filter from clogging since there is not enough kinetic energy to push dust particles into the filter.

## 2.3 Method II - Orifice at Inlet

Figure 6 below shows installation at the orifice at the inlet.

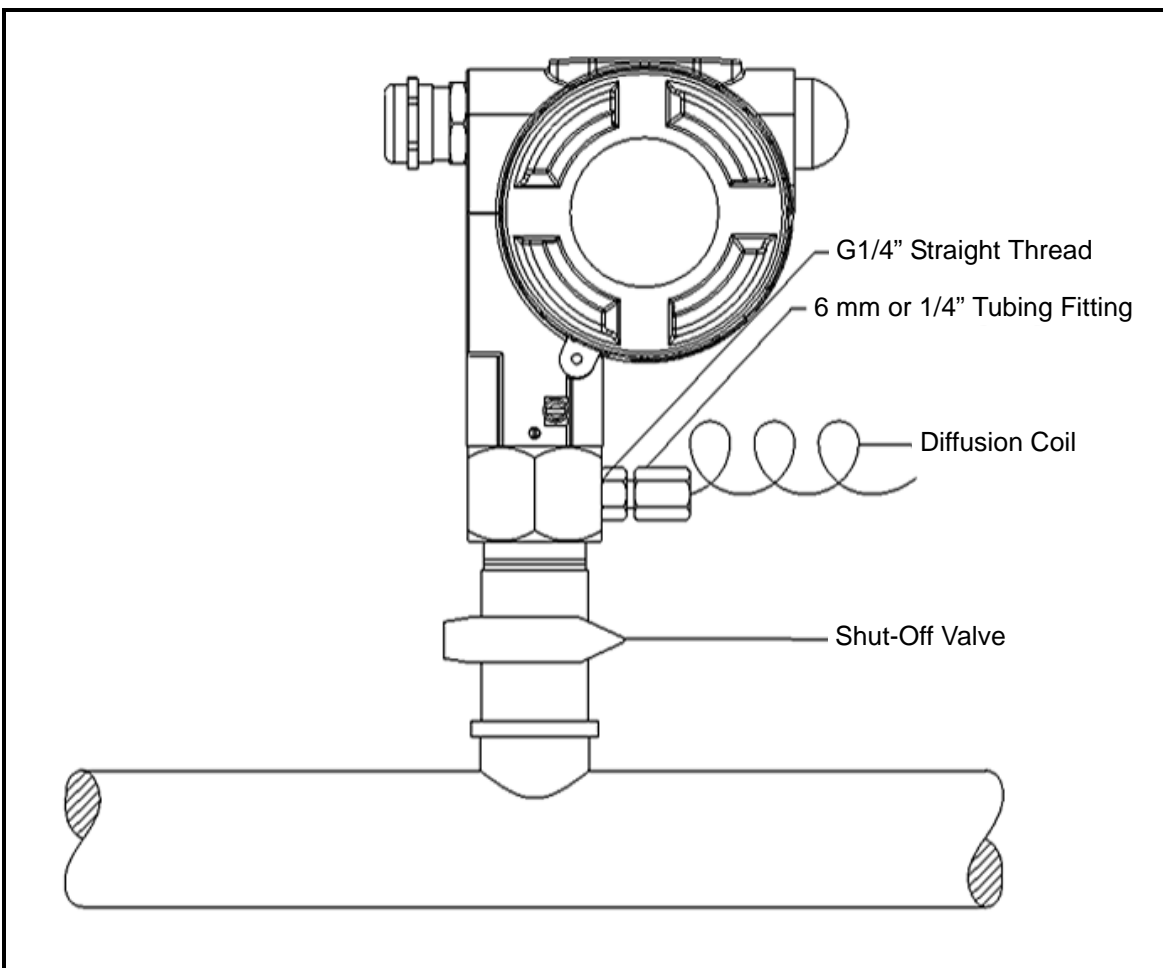


Figure 6: DewPro Installation at Inlet Orifice



## 2.4 Method III - No Flow Restriction

Figure 7 below illustrates an installation with no flow restrictions.

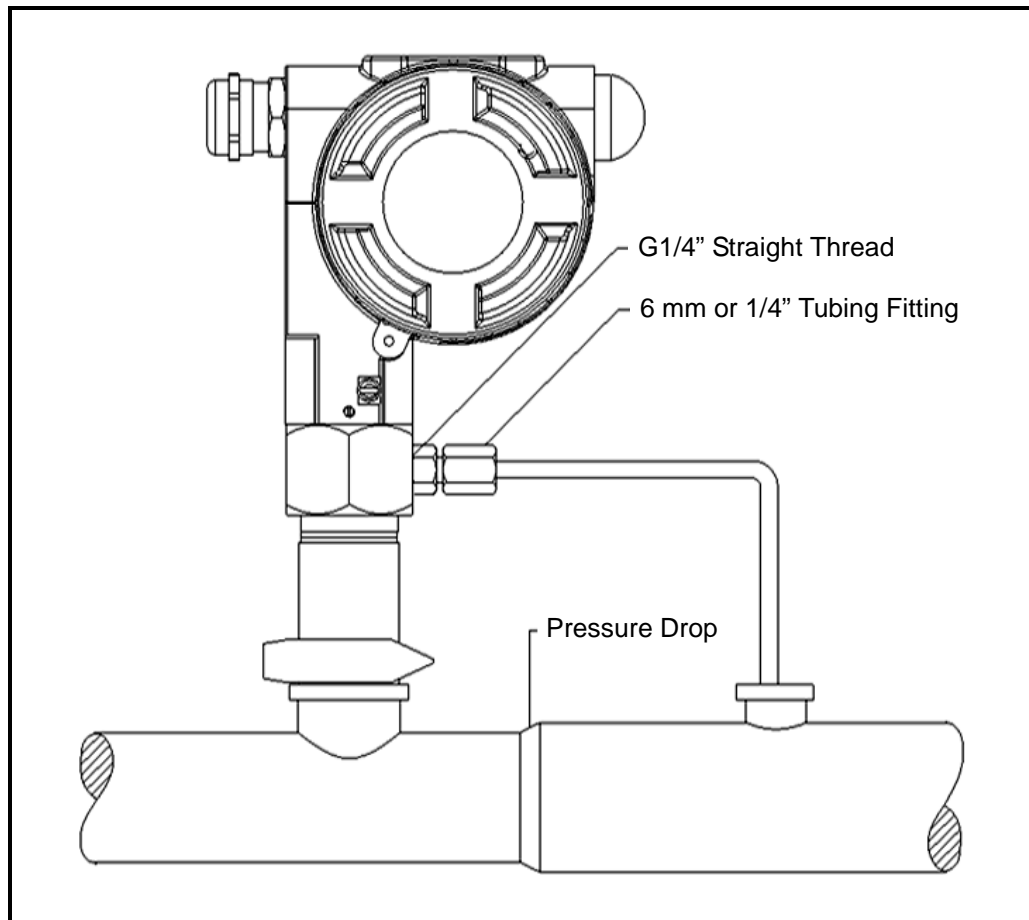


Figure 7: DewPro Installation with No Flow Restriction

### 2.4.1 Low Pressure Closed Loop

Closed loop drying systems, which are very common with hopper dryers in the plastics industry, operate at very low pressures of a few inches of water. The air passing through the DewPro bypass is fed back to the main stream after a pressure drop in the main line. In this configuration, the DewPro bypass has no flow restriction at the inlet and outlet. The outlet is equipped with a 6 mm (1/4") tube fitting to allow simple connection of the loop tubing.

## 2.5 Method IV - Bypass Installation

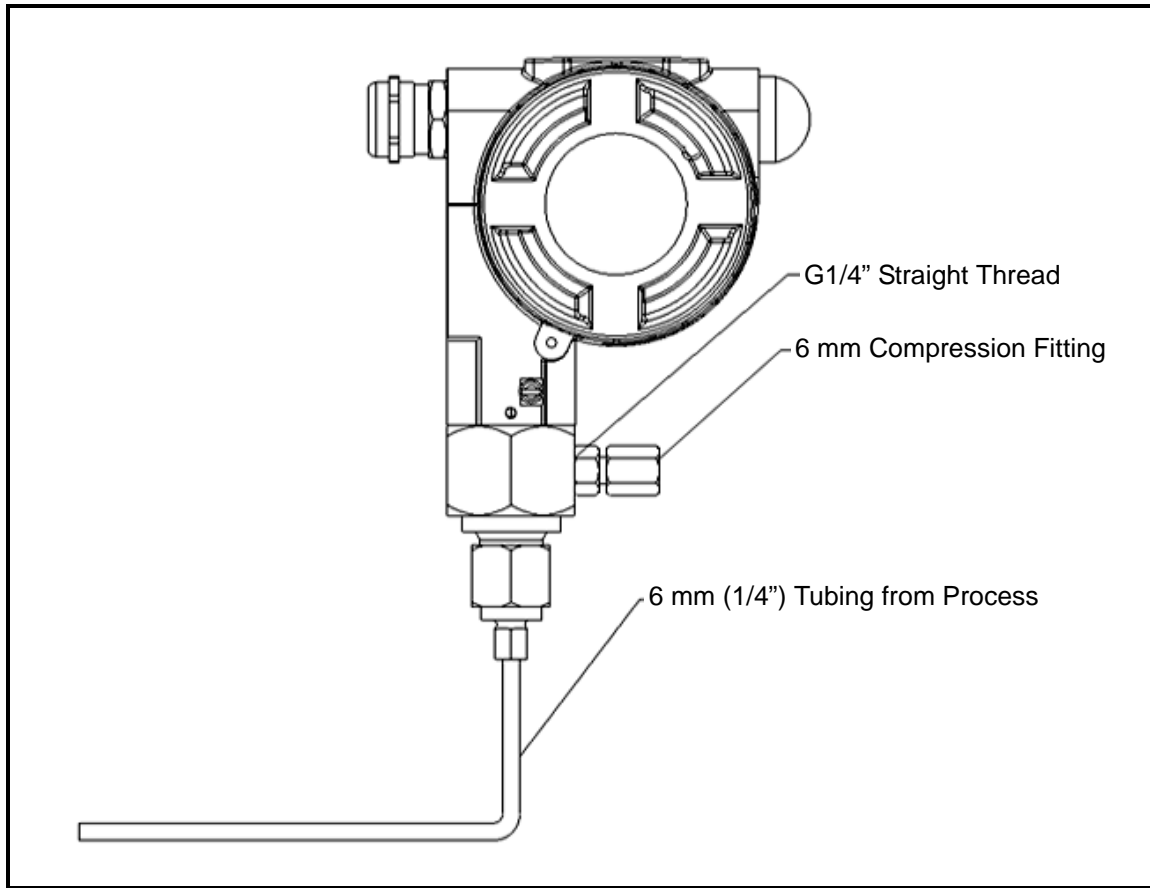


Figure 8: Remote Wall Mount Bypass

### 2.5.1 Remote Installation

In some cases there may not be enough room to install the DewPro directly to the process pipe. The tube connection at the inlet enables mounting the DewPro at a remote location. The functions of Methods I-III can be selected. The DewPro can be mounted on a wall or a plate using the optional mounting bracket, as shown in Figure 9 on page 11.

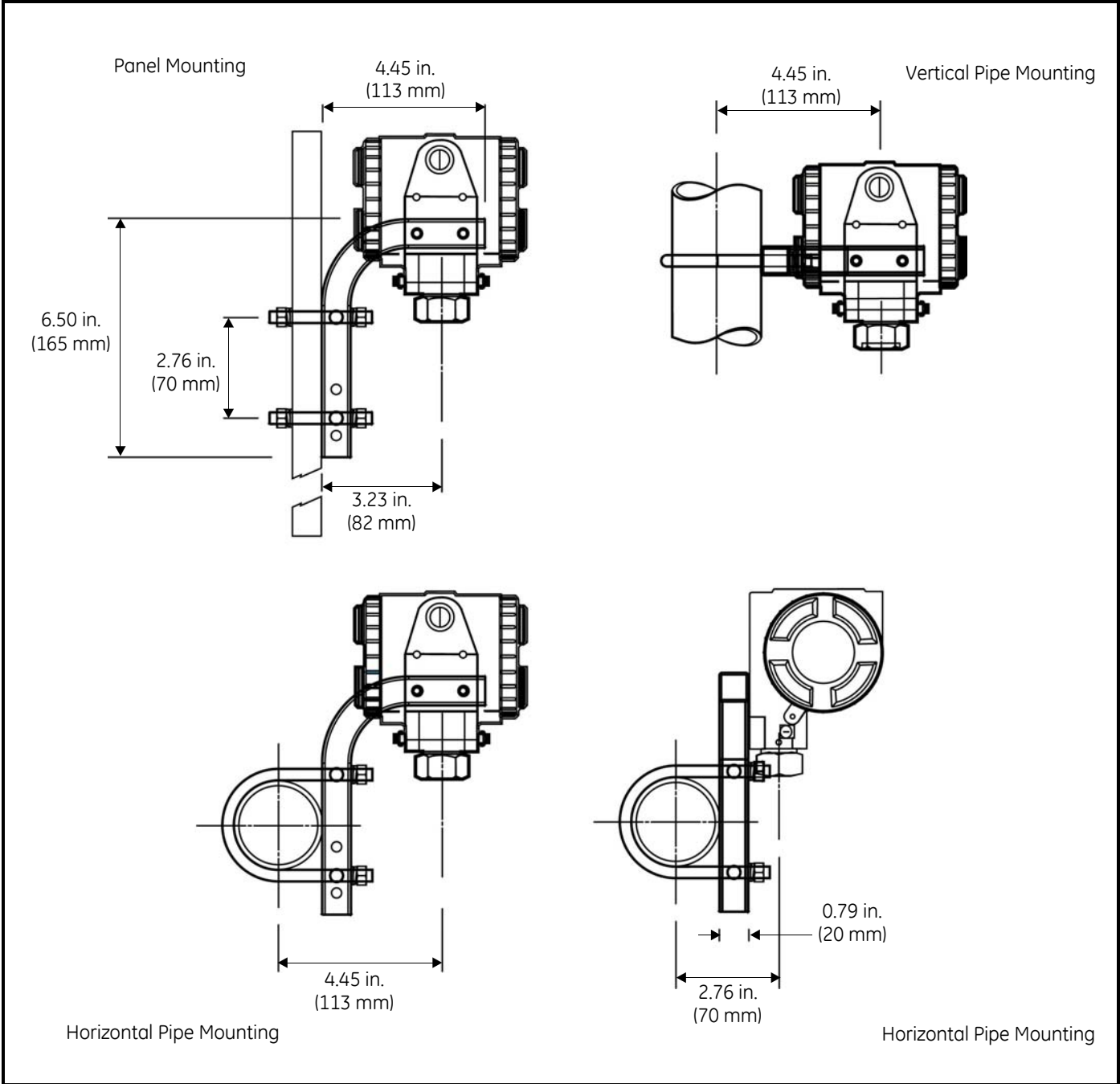


Figure 9: DewPro with Various Mounting Brackets

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## Chapter 3. Wiring Instructions

### 3.1 General Guidelines

**CAUTION!** The DewPro system contains electronic components that are susceptible to damage by static electricity. Proper handling procedures must be observed during the removal, installation, or other handling of internal boards or devices.

**Note:** If the DewPro is equipped with an optional display/user interface, please refer to Chapter 4.

### 3.2 System Configuration

#### 3.2.1 Various Power Supplies

Figure 10 below illustrates various power supplies and displays for use with the DewPro MMY30.

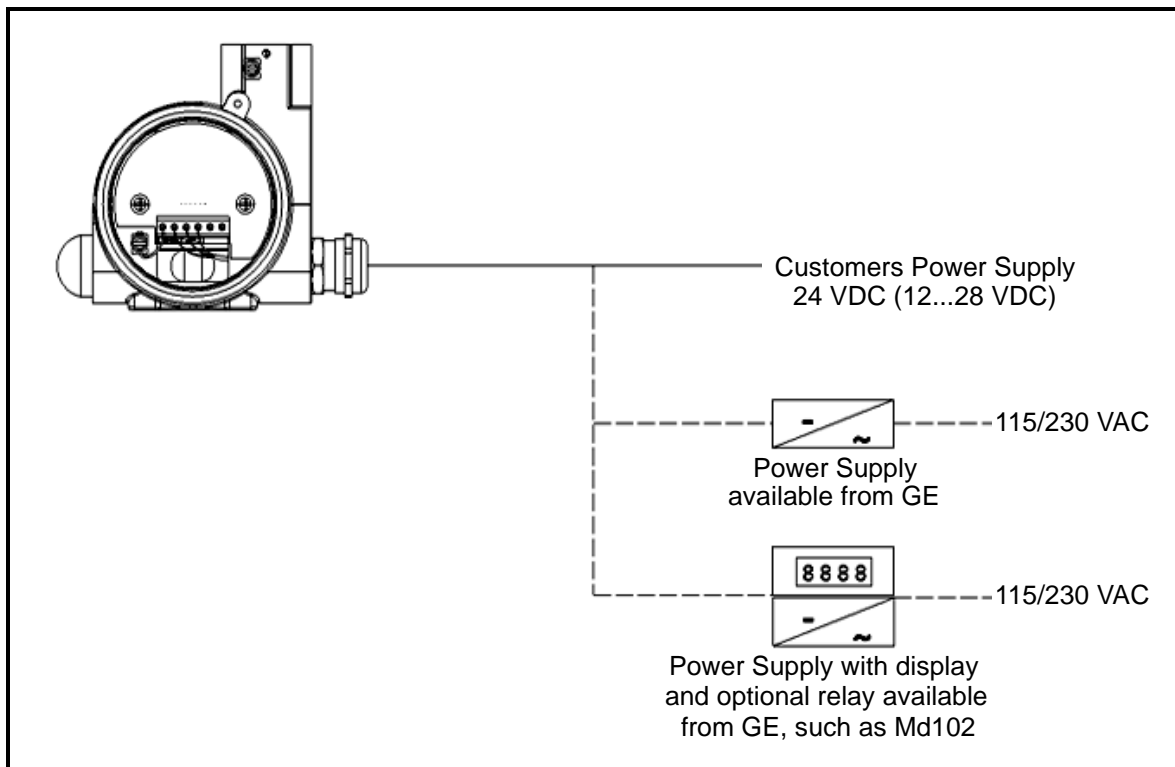


Figure 10: Power Supplies/Displays for MMY30

#### 3.2.2 Designing the Loop

When selecting a power supply, please note that the voltage at the +/- terminal of the DewPro should not fall below 12 VDC. The maximum loop resistance is an important measure for selection of the supply voltage. Each device connected to the loop causes a voltage drop. For instance, using a loop-powered display with an input impedance of  $50\ \Omega$  will cause a voltage drop of 1 VDC at 20 mA, using Ohm's law. Connecting the loop to a PLC will cause a voltage drop across the input.

When designing your loop, add up all voltage losses across the devices connected to the loop and add 12 V. The sum will be the minimum supply voltage required from the power supply. Calculate with a 20% safety factor.

### 3.3 Mounting in Normal Environments

A standard two-wire, stranded cable (shown in Figure 11 below) can be used to interconnect the DewPro with the power source.

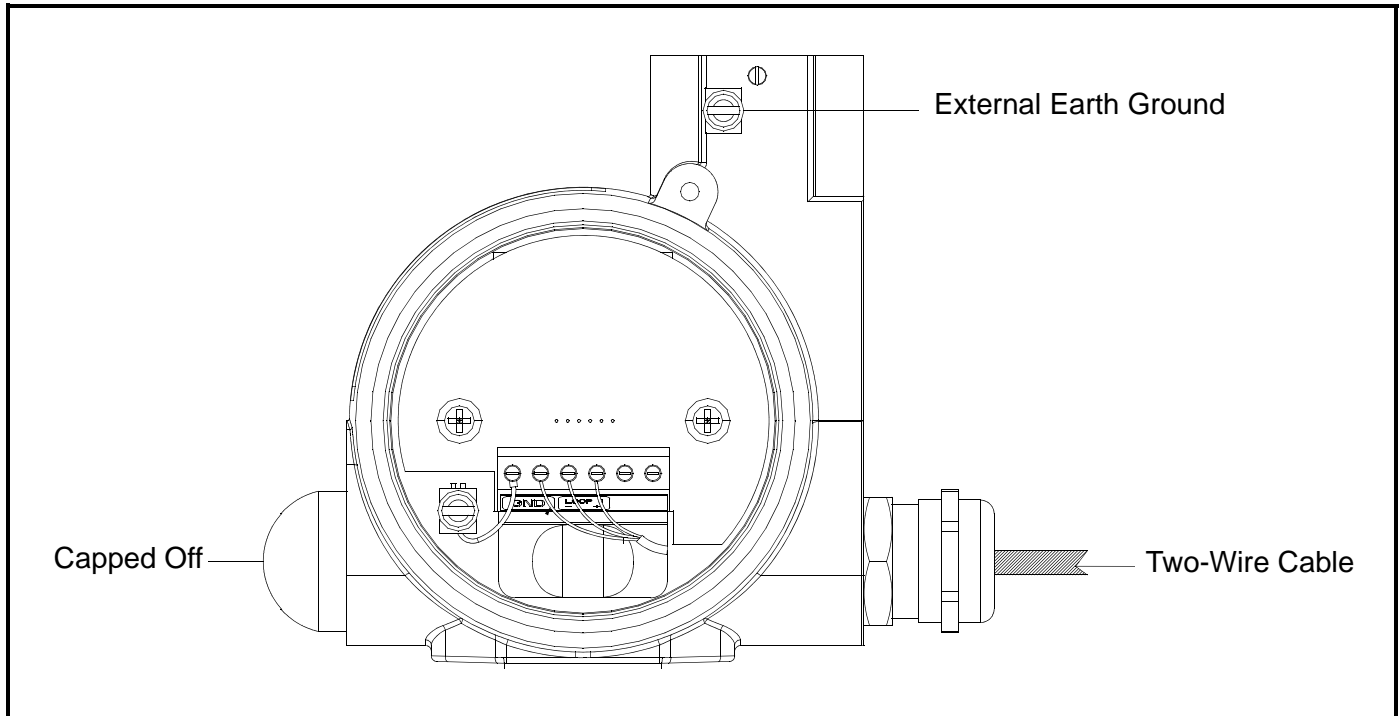


Figure 11: DewPro Interconnections

## 3.4 Mounting in Environments with Severe Electrical Noise

### 3.4.1 EMI/RFI

The DewPro MMY30 meets the EMC requirements of IEC 61326 for equipment used in industrial locations. The MMY30 passed all tests to the standards IEC 61000-4- to the performance criterion A. Test details can be found in Chapter 6, *Specifications*.

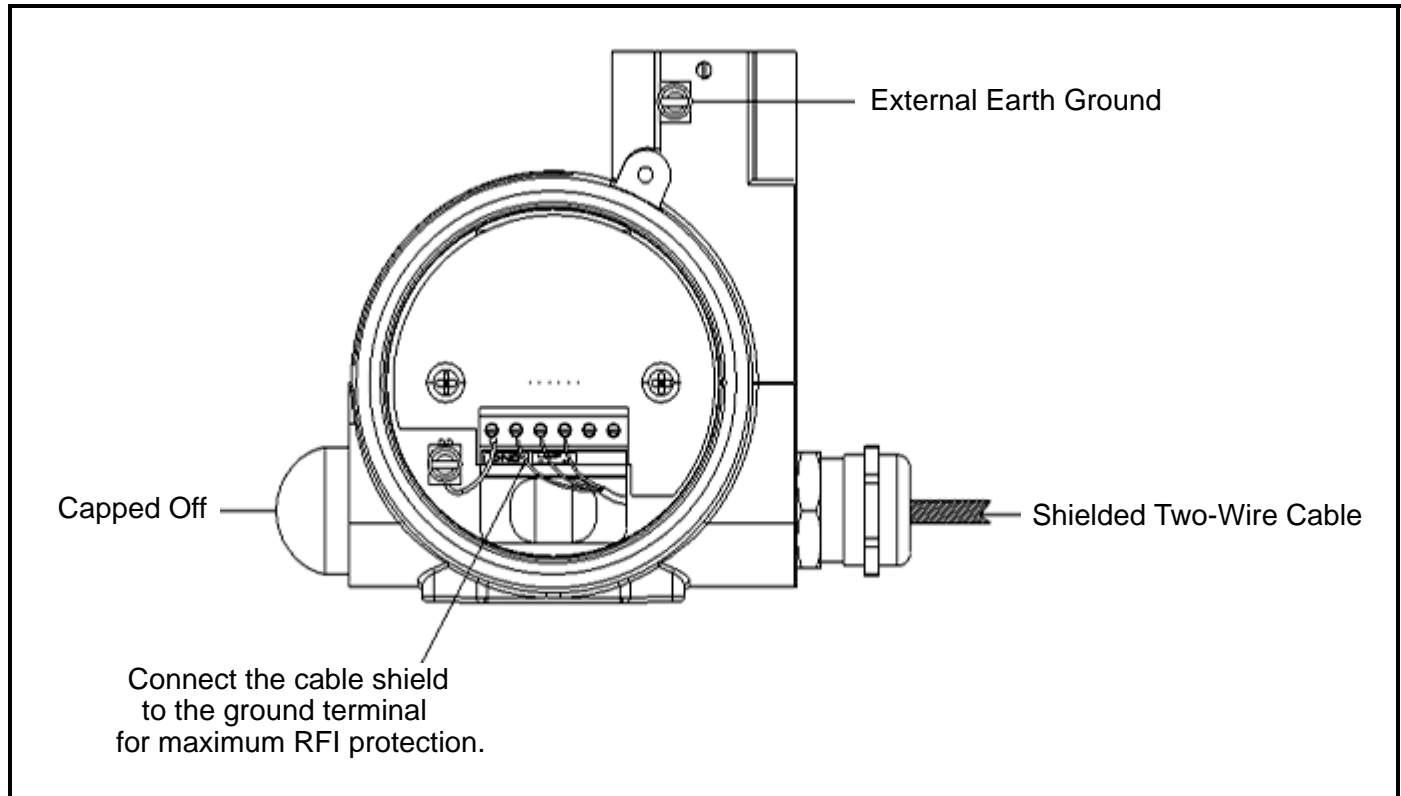


Figure 12: DewPro Mounted in Environment with Severe Electrical Noise

### 3.5 Electrical Connections

Figure 13 below illustrates electrical connections for the DewPro MMY30.

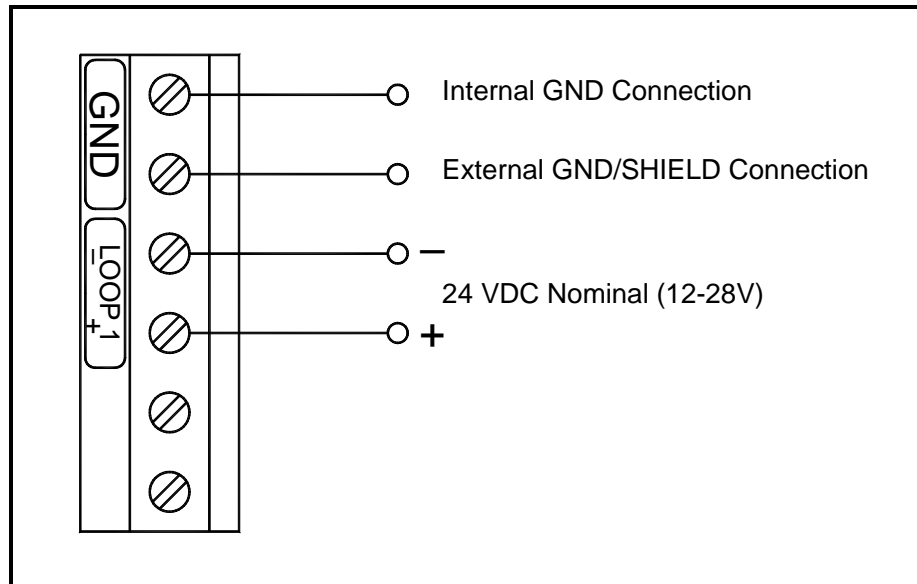


Figure 13: Electrical Connections

### 3.6 General Instructions

1. Unscrew the cap on the terminal side of the unit.
2. Loosen the cable gland located on the side of the unit.
3. Feed the cable through the conduit opening.

**Note:** Use a standard signal cable size.

4. Retighten the metal cable gland to meet IP 67 and to relieve any stress on the wire.
5. Verify that a voltage between 12 and 28 VDC is across the terminals marked + and -.

**Note:** This is the voltage that appears across the DewPro terminals, not necessarily the power supply voltage due to voltage loss in wire length, displays, indicators, etc.

6. In order to meet EMI/RFI immunity, a two-wire shielded cable with a common foil shield layer is being used to power the MMY 30. Removing the insulation by 3" allows users to pull back the foil, clamping it in between the metal cable gland. The ground wire must be connected to the internal grounding screw.



## Chapter 4. Optional Display/User Interface (Option G)

### 4.1 Installation

If the DewPro is equipped with an optional display/user interface, follow the procedure below to access the buttons.

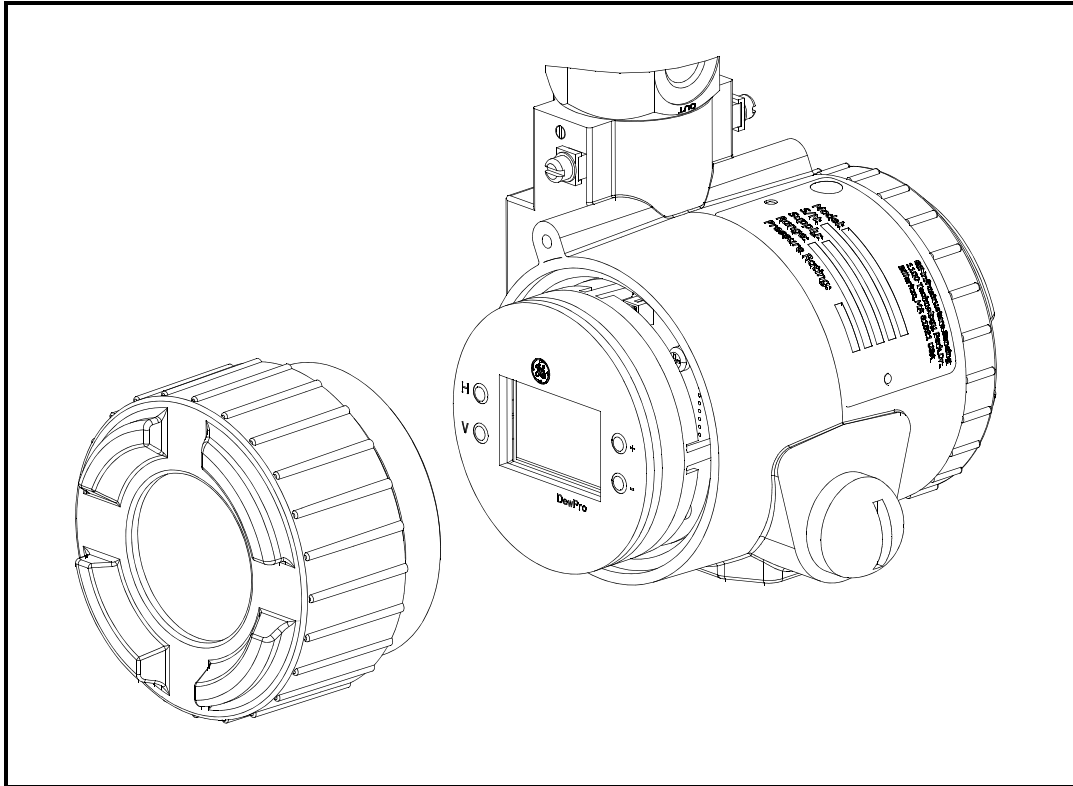


Figure 14: DewPro with Display

#### 4.1.1 DewPro with Display Assembly

1. Unscrew and remove the protective lid from the top of the DewPro (as shown in Figure 14 above), exposing the display module below. The buttons V, H, + and – are now accessible.

#### 4.1.2 Replacing the Display

2. The display unit snaps onto the printed circuit board, resting on four posts. When removing the display, push one post to the outside, using a small screwdriver, and pull the display out.
3. Then unplug the display cable.

## 4.2 Description of the DewPro MMY30 Programming Matrix

In the DewPro trace moisture transmitter with display option, a matrix-style input is used for programming the unit of measure, measuring range, error status of output, and output adjustment. Each option is assigned coordinates on the 10 x 10 matrix, specified with V (vertical), H (horizontal) and a number for each. You select the desired option by entering the matrix position. The following sections describe the features and usage of the various matrix locations as they apply to the MMY30.

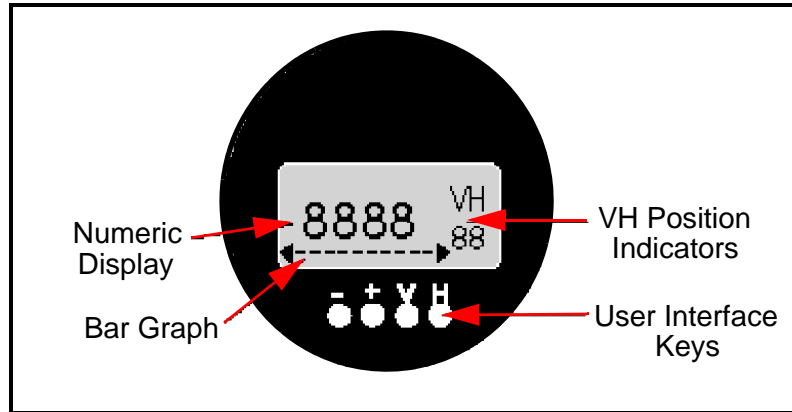


Figure 15: The MMY30 Optional Display

The display of the DewPro MMY30 continuously shows the current matrix location using the vertical (V) and horizontal (H) coordinates to designate the row and column, respectively. The bar graph represents the output current in an analog fashion (refer to Figure 15 above). See Appendix A for an enlarged overview of the matrix with all possible options, shown in Table 2 below.

Table 2: Matrix Input for Programming

MMY30	H0	H1	H2	H3	H4	H5	H6	H7	H8	H9
V0	Display Moisture Value	Select Devices Unit 0 = °C 1 = °F 35 = ppm <sub>v</sub>						Loop #1 at Fault 0 = -10% 1 = 110% 2 = Hold		
V1	Dewpoint °C 4 mA	Dewpoint °C 20 mA	ppm <sub>v</sub> 20 mA							
V2										
V3	Pressure ppm <sub>v</sub> Constant (bar)								Output D/A Cal 4 mA	Output D/A Cal 20 mA
V4										
V5										
V6										
V7										
V8										Input Locking 50 = Unlock
V9	Current Error Code	Previous Error Code	Device ID	Software Version		Set to Default Values 50 = Set Default				Reset Device 50 = Reset After Calibration

## 4.3 Matrix Programming

Movement through the matrix is accomplished by using the “V” and “H” buttons to move to another row or column, as shown in the example below. At any location where a value may be changed by the user, the desired value is programmed using the “+” and “–” buttons. The digit to be changed flashes.

### 4.3.1 Example

To set the dew point value to  $-10^{\circ}\text{C}$  for 20 mA (V1 H1 on matrix):

1. Press the **V** key until the display shows V1.
2. Press the **H** key until the display shows H1.
3. Use the + or – key to change the numeric value to –10.
4. Proceed to any part of the matrix.

## 4.4 Special Functions of the Push Buttons

1. **Reset to Normal Display:** Pressing the **V** and **H** buttons simultaneously returns the user to VH 00 (normal display).
2. **Display Only:** Note that five (5) matrix locations are for display only and may not be changed by the user (refer to Table 1 on page 18 or Appendix A). The “display only” fields are as follows:
  - VH 00 = normal display (in dewpoint  $^{\circ}\text{C}$ )
  - VH 90 = during a system alarm, displays the error code for the fault encountered
  - VH 91 = during normal operation, the previous error code is displayed for reference
  - VH 92 = displays the factory issued identification number
  - VH 93 = displays the factory issued reference number designating the device type and software version
3. **Default Values:** A default value is assigned to each programmable matrix field. The values are present after a reset to factory programmed data has been executed (see VH 95).
4. **Changing Values:** When unlocked (VH89=50), values in certain matrix locations can be changed using the + and – buttons. The changeable digit flashes.

## 4.5 Functions of the Matrix

**Note:** Refer to Table 1 on page 18 or Appendix A.

This section describes the functions available to the user through the matrix, grouped by common function areas. The function is accessed by positioning to the specified location within the matrix.

## 4.5.1 Display and Output Mode

### 4.5.1a Dew Point Display

<b>VH 00</b>	This is the normal display of the transmitter when in operation. The dewpoint is shown in °C or °F, or ppm <sub>v</sub> as selected under VH 01.
--------------	--

### 4.5.1b Selecting the Unit of Measure

<b>VH 01</b>	<p>Selects units to be displayed. Changing from °C to °F does not change the current loop. Changing from dewpoint to ppm<sub>v</sub> does change the current loop.</p> <p><b>Note:</b> When switching to ppm<sub>v</sub>, the display may indicate an error “3” if the dewpoint reading is above –20°C. (For example, the DewPro is exposed to ambient air.)</p>
--------------	--

### 4.5.1c Loop at Fault

<b>VH 07</b>	If any fault malfunction occurs, the loop can be set to either “–10%” (= 3.6 mA), to “110%” (= 22 mA) or “Hold” (stays at the last valid value).
--------------	--

### 4.5.1d Selecting the Analog Output Offset (4 mA)

<b>VH 10</b>	The dewpoint value corresponding to the analog output offset (4 mA) is entered here. Default: –90°C
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**CAUTION!** Ensure the dewpoint value in VH10 is always at least 20°C below the value assigned to 20 mA.

### 4.5.1e Selecting the Analog Output Span (20 mA)

<b>VH 11</b>	The dewpoint value corresponding to the analog output span (20 mA) is entered here. Default: +10°C.
--------------	---

**CAUTION!** Ensure the value in VH11 is always at least 20 °C above the value assigned to 4 mA.

### 4.5.1f Setting the Span Value for the ppm<sub>v</sub> Range

<b>VH 12</b>	<p>Selection of this field sets the span value for the ppm-v range. Default: 100.</p> <p><b>Note:</b> The offset is always 0 ppm<sub>v</sub>. Do not exceed 1000 ppm<sub>v</sub>.</p>
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## 4.5.2 Special Calibration

### 4.5.2a Adjusting the Pressure Constant

<b>VH 30</b>	<p>The process pressure constant is entered in bar (absolute), which is used to calculate <math>\text{ppm}_v</math>. The moisture unit <math>\text{ppm}_v</math> is the ratio of water vapor pressure to the total process pressure and is, therefore, independent of the process pressure. The reason is that when compressing a gas (process pressure) all partial pressures increase by the same factor (Dalton's Law).</p> <p>The gold/aluminum oxide sensor is selective to water vapor pressure monitoring a higher vapor pressure when the total pressure (process pressure) increases. The formula utilized by the analyzer refers to the total pressure of 1 bar. An elevated pressure of the process has to be corrected by programming the actual process pressure in bar absolute to the matrix field VH 30.</p> <p>The system should be designed to maintain a constant pressure, for instance, by using a pressure regulator in a bypass system.</p> <p>Default: 1 bar (absolute)</p>
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### 4.5.2b Adjusting the Current Loop Hardware at 4 mA

<b>VH 38</b>	<p>By connecting an ammeter in the loop, the correct current (4 mA) can be adjusted by increasing or decreasing the displayed digits.</p> <p><b>Note:</b> <i>If the matrix input is locked (VH89), the calibration values are displayed but the current output is unaffected. To enable adjustments, VH89 has to be unlocked by entering "50" into this field.</i></p>
--------------	--

### 4.5.2c Adjusting the Current Loop Hardware at 20 mA

<b>VH 39</b>	<p>Selection of this field assists during calibration, generating a nominal 20 mA signal, but the actual value must be 21.92 mA, an over range to a dewpoint of 22°C. By connecting an ammeter in the loop, the correct current (21.92 mA) can be adjusted by increasing or decreasing the displayed digits.</p> <p><b>Note:</b> <i>If the matrix input is locked (VH89), the calibration values are displayed but the current output is unaffected. To enable adjustments, VH89 has to be unlocked by entering "50" into this field.</i></p>
--------------	---

### 4.5.3 Mode of Operation

#### 4.5.3a Input Locking

<b>VH 89</b>	Any number other than “50” will lock the instrument settings from inadvertent or unauthorized changes. (The instrument is only unlocked at “50.”)
--------------	---

#### 4.5.3b Displaying the Present Error Code

<b>VH 90</b>	In the event of a system fault, this field displays the diagnostic error code for the fault encountered.	
	<b>Error Code</b>	<b>Description</b>
	0	No error.
	1	Dewpoint underrange. The current output has fallen below the 4.00 mA point.
	2	Dewpoint overrange. The current output has exceeded the 21.92 mA level.
	3	The instrument is no longer reading between –90 and –20°C dewpoint while in ppm <sub>v</sub> mode and has fallen off of the internal vapor pressure table.
	4	ppm <sub>v</sub> overrange. The current output has exceeded the 20 mA level. Re-range the ppm <sub>v</sub> upper scaling limit in V1H2 to keep this error from occurring.
	5	Sensor is shorted.
	6	Sensor is open.

#### 4.5.3c Displaying the Previous Error Code

<b>VH 91</b>	When a system fault condition is cleared, the value of the error code is stored in this location. That is, during normal operation, the most recent error code is displayed for reference.
--------------	--

#### 4.5.3d Instrumentation Identification Number

<b>VH 92</b>	The instrumentation identification number should always read “100.”
--------------	---

#### 4.5.3e Identification Field

<b>VH 93</b>	This field indicates the software version (i.e., version 2.02 or higher).
--------------	---

#### 4.5.3f Set to Default Values

<b>VH 94</b>	This field sets all factory defaults. <b>Note:</b> <i>Anything that has been calibrated will not be reset.</i>
--------------	---

#### 4.5.3g Resetting the Device

<b>VH 99</b>	The device is reset in this field by entering 50. <b>Note:</b> <i>Reset the device only after field calibration, using the MMY 245 validator.</i>
--------------	--

## Chapter 5. Troubleshooting

### 5.1 Problems and Recommended Solutions

**Problem:** The loop current is outside the range of 4-20 mA, as shown on display or current meter. In some cases, 22 mA can be ordered as the fault current.

**Solution:** The process dewpoint is out of range. If the dewpoint is above +10°C (+50°F), the current will go to 22 mA. Apply dry air for 20 minutes. If the dewpoint doesn't decrease, consult the factory.

If the dewpoint is below -90°C (-130°F), the current will go below 4 mA and then to 22 mA as fault current. Expose the DewPro to ambient air for several minutes. If the error remains, the cause may be a defective sensor assembly or an electronics malfunction. Consult the factory.

**Problem:** There is no current.

**Solution:** Check the voltage and polarity across +/- terminals with a DC voltmeter. If the voltage is within 12-28 VDC, consult the factory.

**Problem:** The response time is very slow.

**Solution:** Verify the flow with an air flowmeter. If the orifice is at the outlet of a 7 to 8 bar (100 psig) process pressure, the air flow should indicate 20 to 30 l/h (500 cc/min., 1 cfh). If the flow is dramatically lower, the inlet filter may be clogged. Remove the 2 micron filter and clean it with a solvent or replace it.

### 5.2 Removing the Filter

Figure 16 below shows a breakdown of filter parts for removal.

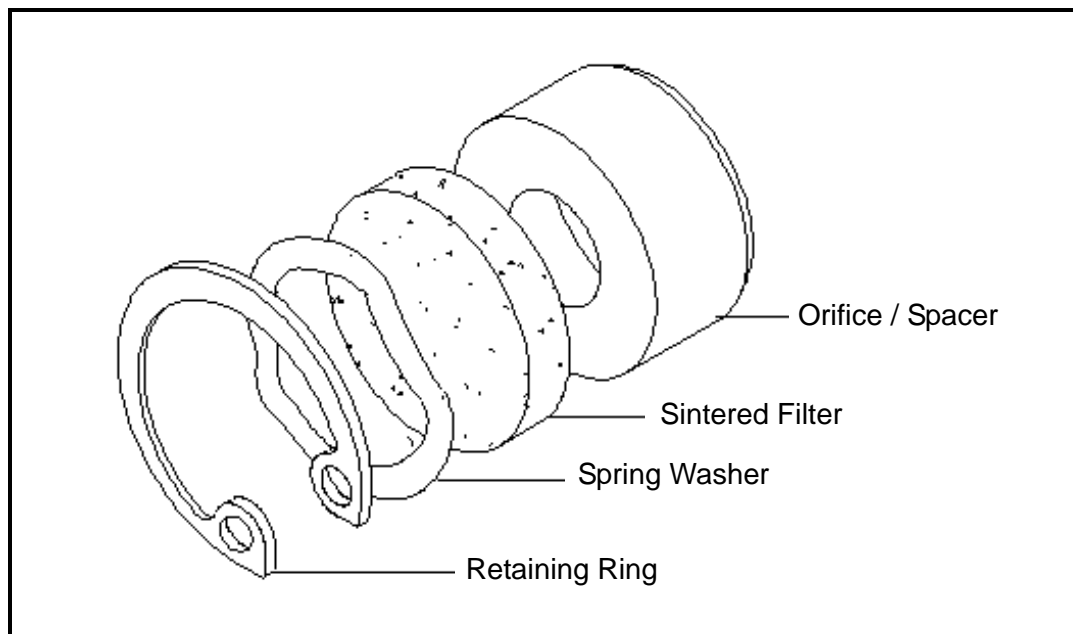


Figure 16: Filter Parts

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## Chapter 6. Technical Specifications

### 6.1 MMY30 Specifications

#### ***Sensing Element***

Planar sensor, aluminum oxide capacitance principle

#### ***Measurement Range***

–90°C to +10°C (–130°F to +50°F) dewpoint temperature.  
0 to 10, 0 to 100, 0 to 1000 ppm<sub>v</sub> (fully adjustable with integral display)

#### ***Recommended Recalibration Cycle***

12 months, depending on the application

#### ***Calibration Accuracy***

±2°C (±3.6°F) dew point at 25°C (77°F)

#### ***Maximum Sensor Relative Humidity***

50% at dewpoint temperatures >0°C (32 °F)

#### ***Operating and Storage Temperature***

–40°C to +50°C (–40°F to +122°F)

#### ***Air Bleed Off at 7 bar (100 psig)***

Approximately 28 sl/h (1 SCFH)

#### ***Maximum Operating Pressure***

31 bar, 3.1 MPa (450 psig)

#### ***Helium Leak-Rate***

<10<sup>–6</sup> mbar l/s

#### ***Output***

4 to 20 mA; 16 µA resolution

#### ***Flow Block***

316 stainless steel with G ½ thread (DIN ISO 228) or ½” (12.7 mm) MNPT thread

#### ***Wrench Width for Flow Block***

42 mm (1 5/8”)

## 6.1 MMY30 Specifications (cont.)

### ***Electronics***

Microcontroller operated

### ***Moisture Unit***

Dew point temperature in °C or °F, ppm<sub>v</sub>

### ***Power Supply***

24 VDC nominal, 12 to 28 VDC range

### ***Protection***

Type 4X (IP 67)

### ***Weight***

1.5 kg (3.2 lbs)

### ***European Compliance***

Complies with EMC Directive 89/336/EEC and PED 97/23/EC for DN<25

## 6.2 Optional Onboard Display with User Interface

The optional onboard display with user interface uses a matrix configurator for:

- range changes
- unit of measure selection
- current loop adjustment
- error diagnostics
- current value selection for fault conditions
- entering a pressure constant for ppm<sub>v</sub>

## 6.3 EMI/RFI

### ***Performance Criterion A:***

1. Conducted Emission Test as per CISPR 11 Class A, 2004
2. Radiated Emission Test as per CISPR 11 Class A, 2004
3. Radiated Susceptibility Test as per IEC 61000-4-3, 2002
4. Electrostatic Discharge Test as per IEC 61000-4-2, 2001
5. Electrical Fast Transient Test as per IEC 61000-4-4, 2004
6. High Energy Surge Immunity Test as per IEC 61000-4-5, 2001
7. Power Frequency Magnetic Field Test as per IEC 61000-4-8, 2001

## 6.4 EMC

IEC 61326, Industrial Locations

## 6.5 Optional Certifications/Approvals

FM IS Cl. I, II, III, Div. 1, Grps. A-G, T5  
FM XP-IS Cl. I, Div. 1, Grps. A-D, T5  
FM NI Cl. I, Div. 2, Grps. A-D, T4A  
DIP Cl. II, III, Div. 1, Grps. E-G, T5  
ATEX II 3G EEx nA IIC T4

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## Appendix A. User Interface Matrix Input

Table 3: Matrix Input for Programming

MMY30	H0	H1	H2	H3	H4	H5	H6	H7	H8	H9
V0	Display Moisture Value	Select Devices Unit 0=°C 1=°F 35=ppm <sub>v</sub>						Loop #1 at Fault 0=-10% 1=110% 2=Hold		
V1	Dewpoint °C 4 mA	Dewpoint °C 20 mA	ppm <sub>v</sub> 20 mA							
V2										
V3	Pressure ppm <sub>v</sub> Constant (bar)								Output D/A Cal 4 mA	Output D/A Cal 20 mA
V4										
V5										
V6										
V7										
V8										
V9	Current Error Code	Previous Error Code	Device ID	Software Version		Set to Default Values 50 = Set Default				Reset Device 50 = Reset After Calibration

---

## Warranty

Each instrument manufactured by GE Sensing is warranted to be free from defects in material and workmanship. Liability under this warranty is limited to restoring the instrument to normal operation or replacing the instrument, at the sole discretion of GE Sensing. Fuses and batteries are specifically excluded from any liability. This warranty is effective from the date of delivery to the original purchaser. If GE Sensing determines that the equipment was defective, the warranty period is:

- one year from delivery for electronic or mechanical failures
- one year from delivery for sensor shelf life

If GE Sensing determines that the equipment was damaged by misuse, improper installation, the use of unauthorized replacement parts, or operating conditions outside the guidelines specified by GE Sensing, the repairs are not covered under this warranty.

---

**The warranties set forth herein are exclusive and are in lieu of all other warranties whether statutory, express or implied (including warranties or merchantability and fitness for a particular purpose, and warranties arising from course of dealing or usage or trade).**

---

## Return Policy

If a GE Sensing instrument malfunctions within the warranty period, the following procedure must be completed:

1. Notify GE Sensing, giving full details of the problem, and provide the model number and serial number of the instrument. If the nature of the problem indicates the need for factory service, GE Sensing will issue a RETURN AUTHORIZATION NUMBER (RAN), and shipping instructions for the return of the instrument to a service center will be provided.
2. If GE Sensing instructs you to send your instrument to a service center, it must be shipped prepaid to the authorized repair station indicated in the shipping instructions.
3. Upon receipt, GE Sensing will evaluate the instrument to determine the cause of the malfunction.

Then, one of the following courses of action will then be taken:

- If the damage is covered under the terms of the warranty, the instrument will be repaired at no cost to the owner and returned.
- If GE Sensing determines that the damage is not covered under the terms of the warranty, or if the warranty has expired, an estimate for the cost of the repairs at standard rates will be provided. Upon receipt of the owner's approval to proceed, the instrument will be repaired and returned.

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We,

GE Industrial, Sensing  
1100 Technology Park Drive  
Billerica, MA 01821  
USA

declare under our sole responsibility that the

**DewPro® MMR30 Moisture Transmitter Probe**  
**DewPro® MMR31 Moisture Analyzer**  
**DewPro® MMY30 and MMY31 Dew Point Transmitters**  
**DewPro® MMR101 High-Temperature Moisture Transmitter**

to which this declaration relates, are in conformity with the following standards:

- EN 61326:1997+A1+A2

following the provisions of the 89/336/EEC EMC Directive.

*The units listed above and any sensors and ancillary sample handling systems supplied with them* do not bear CE marking for the Pressure Equipment Directive, as they are supplied in accordance with Article 3, Section 3 (sound engineering practices and codes of good workmanship) of the Pressure Equipment Directive 97/23/EC for DN<25.

September 16, 2005

Date of Issue



Mr. Gary Kozinski  
Certification & Standards, Lead Engineer



Nous,

GE Industrial, Sensing  
1100 Technology Park Drive  
Billerica, MA 01821  
USA

déclarons sous notre propre responsabilité que les

**DewPro® MMR30 Moisture Transmitter Probe**  
**DewPro® MMR31 Moisture Analyzer**  
**DewPro® MMY30 and MMY31 Dew Point Transmitters**  
**DewPro® MMR101 High-Temperature Moisture Transmitter**

relatif à cette déclaration, sont en conformité avec les documents suivants:

- EN 61326:1997+A1+A2

suivant les règles de la Directive de Compatibilité Electromagnétique 89/336/EEC.

*Les matériels listés ci-dessus, ainsi que les capteurs et les systèmes d'échantillonnages pouvant être livrés avec ne portent pas le marquage CE de la directive des équipements sous pression, car ils sont fournis en accord avec la directive 97/23/EC des équipements sous pression pour les DN<25, Article 3, section 3 qui concerne les pratiques et les codes de bonne fabrication pour l'ingénierie du son.*

16 septembre 2005

Date d'émission



Mr. Gary Kozinski  
Certification et normes, ingénieur de fil



Wir,

GE Industrial, Sensing  
1100 Technology Park Drive  
Billerica, MA 01821  
USA

erklären, in alleiniger Verantwortung, daß die Produkte

**DewPro® MMR30 Moisture Transmitter Probe**  
**DewPro® MMR31 Moisture Analyzer**  
**DewPro® MMY30 and MMY31 Dew Point Transmitters**  
**DewPro® MMR101 High-Temperature Moisture Transmitter**

folgende Normen erfüllen:

- EN 61326:1997+A1+A2

gemäß den Europäischen Richtlinien, EMV-Richtlinie Nr.: 89/336/EG.

Die oben aufgeführten Geräte und zugehörige, mitgelieferte Sensoren und Handhabungssysteme tragen keine CE-Kennzeichnung gemäß der Druckgeräte-Richtlinie, da sie in Übereinstimmung mit Artikel 3, Absatz 3 (gute Ingenieurpraxis) der Druckgeräte-Richtlinie 97/23/EG für DN<25 geliefert werden.

16. September 2005

Außtellungsdatum



Hr. Gary Kozinski  
Bescheinigung und Normen, Leitungsingenieur





## Customer Support Centers

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